

ACCEPTED
with COMMENTS
in EPA Letter Dated:

MAR 16 1987

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
2548-67 and 2548-68

INSTRUCTIONS
FOR INTRANSIT
FUMIGATION OF
SHIP HOLDS
WITH

Detiaphos (R)
PELLETS

AND

TABLETS

RESTRICTED USE PESTICIDE
DUE TO ACUTE INHALATION TOXICITY OF HIGHLY
TOXIC HYDROGEN PHOSPHIDE (PHOSPHINE, PH₃) GAS

For retail sale to and use only by certified applicators for those uses covered by the applicator's certification or persons trained in accordance with the attached product manual working under the direct supervision and in the physical presence of the certified applicator. Physical presence means on site or on the premises. Read and follow the label and the Research Products Company product manual which contains complete instructions for the safe use of this pesticide.

EPA Establishment No. 33982WG01
EPA Registration No. 2548-67
EPA Registration No. 2548-68

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Introduction

Detiaphos(R) Tablets and Detiaphos(R) Pellets are fumigant preparations containing 34% magnesium phosphide (by weight) which when removed from their original shipping containers will liberate hydrogen phosphide (phosphine). The reaction between atmospheric moisture and magnesium phosphide which produces hydrogen phosphide will continue for several days depending on temperature and humidity to which the preparation is exposed. To be effective the cargo holds or tanks should remain sealed for the duration of the voyage.

General Information

- (1) Shipboard fumigation is also regulated by the U. S. Coast Guard regulations 46 CFR 147A.
- (2) Detiaphos(R) Tablets (EPA Reg. No. 2548-68) and Detiaphos(R) Pellets (EPA Reg. No. 2548-67) are classified by the U. S. Environmental Protection Agency as RESTRICTED USE PESTICIDES, DUE TO ACUTE INHALATION TOXICITY OF HIGHLY TOXIC HYDROGEN PHOSPHIDE (PHOSPHINE, PH3) GAS. For retail sale to and use only by certified applicators for those uses covered by the applicator's certification or persons trained in accordance with the attached product manual working under the direct supervision and in the physical presence of the certified applicator. Physical presence means on site or on the premises. Read and follow the label and the Research Products Company product manual which contains complete instructions for the safe use of this pesticide.
- (3) This product is toxic to fish. Keep out of lakes, streams and other aquatic environments. Do not contaminate water by cleaning equipment or disposal of wastes.
- (4) For additional information refer to product labels and the booklet entitled "Application Procedures for Detiaphos(R) Pellets and Detiaphos(R) Tablets".

Pre-Voyage Fumigation Procedures and Precautions:

- (1) Refer to and comply with the regulations and procedures found in U. S. Coast Guard regulation, 46 CFR 147A.
- (2) Prior to fumigating a vessel for intransit cargo fumigation, the master of the vessel or his representative, and the fumigator must determine whether the vessel is suitably designed and configured so as to

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allow for safe occupancy by the ship's crew throughout the duration of the fumigation/voyage.

If it is determined that the design and configuration of the vessel does not allow for safe occupancy by the ship's crew throughout the duration of the fumigation/voyage, then the vessel will not be fumigated unless all crew members are removed from the vessel. The crew members will not be allowed to re-occupy the vessel until the vessel has been properly aerated and a determination has been made by the master of the vessel and the fumigator that the vessel is safe for occupancy.

- (3) The person responsible for the fumigation must notify the master of the vessel, or his representative, of the requirements relating to personal protection equipment*, low range detection equipment and that a person qualified in the use of this equipment must accompany the vessel with cargo under fumigation. Emergency procedures, cargo ventilation, periodic monitoring and inspections, and first aid measures must be discussed with and understood by the master of the vessel or his representative.
- (4) Seal all openings to the cargo hold or tank using suitable, water proof, gas tight materials. Lock and/or otherwise secure all openings, manways, etc. used to enter the hold. Post appropriate "DANGER" placards on same.
- (5) On tankers the over-space pressure relief system of each tank must be sealed by (1) the closing of appropriate valves and (2) sealing the openings into the over-space with gas tight materials.
- (6) Contact appropriate authorities.
- (7) If the fumigation is not completed and the vessel aerated before the manned vessel leaves port, the person in charge of the vessel shall insure that at least two units of personal protection equipment and one gas or vapor detection device and a person qualified in their operation be on board the vessel during the voyage.
- (8) During the fumigation or until a manned vessel leaves port or the cargo is aerated, the person in charge of the fumigation shall insure that a qualified person, using gas or vapor detection equipment test spaces adjacent to the fumigated cargo area and regularly occupied spaces for fumigant leakage.

If leakage of the fumigant is detected, the person in charge of the fumigation shall take action to correct the

07500 leakage or shall inform the master of the vessel or his
 07550 representative, of the leakage so that corrective
 07600 action can be taken.
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- 07700 (9) Review with the master, or his representative, the
 07750 voyage precautions and procedures.
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07850 *Personal protection equipment means a respirator or gas
 07900 mask fitted with a canister designed for phosphine gas
 07950 which is approved by NIOSH/MSHA. A gas mask and
 08000 canister is approved for use up to 15 ppm. Above 15 ppm
 08050 or at unknown concentrations a SCBA or its equivalent
 08100 must be used.
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08200 U d. Dosage Guide
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08300 U	08350 PELLETS	08400 TABLETS	08450 UNIT OF VOLUME*
08500	300-500	60-100	1000 CU. FT.
08550	400-750	80-150	1000 BUSHELS

08600 *Volume or storage capacity of the area being treated.
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08700 U e. Procedures for Bulk Dry Cargo Vessels and Tankers:
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- 08800 (1) Apply either the tablets or pellets by scattering them
 08850 uniformly onto the commodity surface utilizing as much
 08900 of the total surface area as possible, or insert them
 08950 uniformly into the commodity mass by hand or with probes
 09000 to any depth desired.
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- 09100 (2) Close and secure hatch covers, tank tops, butterworths,
 09150 etc. immediately following application.
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09350 U f. Voyage Precautions and Procedures:
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- 09450 (1) At regular intervals monitor spaces adjacent to areas
 09500 containing fumigated cargo and all regularly occupied areas
 09550 for fumigant leakage using appropriate gas detection
 09600 equipment.
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09700 Special attention should be given to living quarters,
 09750 kitchens, storerooms, mess halls, keel ducts, day rooms,
 09800 the bridge, engine room and any other enclosed spaces
 09850 occupied or frequented by crew members during a voyage.
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- 09950 (2) If ~~hydrogen sulfide~~ hydrogen sulfide is detected, evacuate the space or
 10000 area, locate and seal off the source of the leak wearing
 10050 appropriate respiratory protection equipment. Ventilate
 10100 the area before allowing occupants to return.
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- 10200 (3) Do not enter fumigated holds or tanks.
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(4) Do not open, ventilate or aerate the fumigated holds during the voyage.

U g. Precautions and Procedures During Discharge:

If necessary to enter holds prior to discharge, test spaces directly above cargo surface for fumigant concentration, using appropriate gas detection and personal protection equipment. Do not allow entry into fumigated areas without personal protection equipment, unless fumigant concentrations are at safe levels, as indicated by a suitable detector.

U h. Personal Protective Equipment and Monitoring:

- (1) Fully loaded holds on dry bulk carriers are considered an outdoor fumigation.
- (2) Tanker holds which must be entered to fumigate and partially loaded holds on dry bulk carriers are fumigated from within the area being treated.
- (3) See sections "I" and "M" on pages of the manual titled "Application Procedures for Deltaphos(R) Pellets and Deltaphos(R) Tablets" for requirements.
- (4) If hydrogen phosphide is detected a minimum of two qualified persons on ship should wear the gas mask and canister described above while aerating the area and locating and sealing the leak.

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